

REMARKS

Reconsideration of this application, as presently amended, is respectfully requested. Claims 1-22 are pending in this application. Claims 1-22 stand rejected.

The applicants would like to thank the Examiners, Ms. Banks-Harold and Ms Roberts, for the courtesies extended to applicants' representative during the personal interview conducted on January 24, 2008. During the course of the interview, the independent claims were discussed. Further, applicants' representative proposed clarifying amendments to claims 1, 4, 9, 13 and 14. Finally, the patentability arguments presented during the interview emphasized that the end result of the **Chakraborty et al.** reference is to produce a video segmented into shots, and no further processing related to classifying a scene is performed after the video is segmented into shots. In contrast, the presently claimed invention begins with segmenting a video into shots (preprocessing), and scene classification operations are then performed on the video segmented into shots.

No agreement was reached. The Examiner indicated that the arguments presented during the interview would be considered in detail and a detailed response to the arguments presented during the interview would be presented when the response is filed.

Claim Rejections – 35 U.S.C. §102

Claims 1-6, 9-14 and 16 are rejected under 35 U.S.C. §102 as being anticipated by **Chakraborty et al.** (USP 7,110,454, previously cited). For the reasons set forth in detail below, this rejection, as it applies to the currently amended claims, is respectfully traversed.

Claims 1, 4, 9, 13 and 14 have been amended to clarify that the scene classification apparatus includes a segmentation device to segment the video into respective shots. For example, according to claim 1, the respective shots can then be classified into a dynamic scene or a static scene (“a dynamic/static scene detector for classifying the respective shots into a dynamic scene with much motions or a static scene with little motions based on the shot density and the motion intensity”).

Chakraborty et al. relates to detecting shot changes (equivalently, scene changes) in a sequence of video frames using a combination of a plurality of difference metrics (see Abstract). It is noted that **Chakraborty et al.** considers a “scene” and a “shot” to be the same thing. See, for example, col. 7, line 52 of **Chakraborty et al.** (“After the different scenes (shots) are determined...”). Also see, for example, col. 1, lines 37-39 of **Chakraborty et al.** (“Typically, transitions between shots (also referred to as ‘scene changes’...)”). In other words, **Chakraborty et al.** considers detecting a “scene change” to be the same as detecting a transition between shots or a shot boundary.

More specifically, **Chakraborty et al.** relates to detecting shot boundaries in order to classify (or segment) video into units of shots. **Chakraborty et al.** detects the shot boundaries using the various metrics noted above, which are all indices used to evaluate a degree of change in pixel value between *adjacent frames* of the video. Further, it is clear that the various metrics used to determine shot boundaries in **Chakraborty et al.** are calculated *before* a video is segmented into shots because these metrics are first calculated and then used to determine the shot boundaries (see, e.g., Figs. 2A and 2B, steps 202-204 and step 232).

In contrast to **Chakraborty et al.**, the present invention requires as *preprocessing* the detection of shot boundaries to classify the video into units of shots (i.e., the claimed “a shot segmentation device to segment the video into respective shots”) before obtaining shot density and motion intensity of the respective shots. Therefore, with respect to claim 1, the various metrics (histogram difference metric, interframe difference metric, etc.) disclosed by **Chakraborty et al.**, which are used to determine shot boundaries, cannot correspond to the claimed “a detector for detecting shot density DS of the video” and “a detector for detecting motion intensity of the respective shots” because these metrics are calculated before it is even known what portion of the video constitutes a shot, and are then used to determine a shot. That is, these metrics are used to determine boundaries that may then be used to define a shot, and are not used to evaluate shot density and motion intensity of an already defined shot.

Further, it follows that **Chakraborty et al.** does not disclose or suggest a scene classification device wherein video is segmented into shots and the respective shots are classified into “a dynamic scene with much motions or a static scene with little motions *based on the shot density and the motion intensity*,” as recited in claim 1. More specifically, as noted above, the Examiner considers the histogram difference metric and the interframe difference metric to correspond to the claimed “shot density” and “motion intensity [of the respective shots].” However, these metrics are used to define shot boundaries and are not used to define or classify a dynamic scene or static scene. In other words, these metrics are used to define boundaries of a shot or scene and are not used to evaluate or classify an already defined shot or scene (shot and

scene are used synonymously here because, as noted above, **Chakraborty** considers the shot and scene to be the same).

Claim 4 patentably distinguishes over the **Chakraborty et al.** reference for reasons similar to those disclosed above with respect to claim 1.

Claim 9

In the previous response, it was argued that the histogram difference metric of **Chakraborty** is related to pixel intensity and is not related to motion direction of shots. The current Office Action responds to the previously presented patentability arguments regarding claim 9 (i.e., that **Chakraborty** does not disclose the claimed “detector for detecting a histogram relating to motion directions of the shots”) by citing col. 1, lines 45-46, which discloses that during a shot, the camera might undergo motion, such as panning. See Office Action, page 3, Item 3. However, the fact that the camera is panning (i.e., moving) does not affect the fact that the histogram difference metric of **Chakraborty** is related to pixel intensity and is not related to motion direction of shots. In other words, the pixel intensity does not indicate the motion direction of shots, regardless of whether the camera is in motion.

Accordingly, it is submitted that claim 9 patentably distinguishes over the **Chakraborty** reference for at least the reason set forth above.

Further, claim 9 has been amended in a manner similar to claim 1. It is submitted that claim 9 also patentably distinguishes over the **Chakraborty et al.** reference for reasons similar to those disclosed above with respect to claim 1.

Claim 13

With respect to claim 13, it was previously argued that **Chakraborty et al.** does not disclose the “detector for detecting a shot density DS of the video” and “a commercial scene detector for detecting a commercial scene by comparing a shot density detected during a predetermined interval with a predetermined reference shot density.”

In the current Office Action, the Examiner repeats the previous rejection of claim 13 and provides no response to the previously presented patentability arguments. It is respectfully submitted that the previously presented arguments are still applicable. Therefore, the previously presented arguments are hereby reiterated. Further, 37 C.F.R. §1.104 requires that the Examiner’s Office Action must be complete as to all matters. Accordingly, to be complete the Office Action must address all arguments.

Further, claim 13 has been amended in a manner similar to claim 1. It is submitted that claim 13 also patentably distinguishes over the **Chakraborty et al.** reference for reasons similar to those disclosed above with respect to claim 1.

Claim 14

With respect to claim 14, the Office Action repeats the same rejection set forth in the previous Office Action, and provides no response to the previously presented arguments.

It is submitted that the previously presented arguments are still applicable. Specifically, although **Chakraborty** discloses detecting shot boundaries, the reference does not disclose or

suggest detecting a commercial scene based on a number of shot boundaries detected. Therefore, the previously presented patentability arguments are hereby reiterated in their entirety.

Further, 37 C.F.R. §1.104 requires that the Examiner's Office Action must be complete as to all matters. Accordingly, it is submitted that the Examiner's Office Action is incomplete because it has not addressed the arguments with respect to claim 14. It is requested that a new Office Action that addresses the arguments with respect to claim 14 be issued.

Further, claim 14 has been amended in a manner similar to claim 1. It is submitted that claim 14 also patentably distinguishes over the **Chakraborty et al.** reference for reasons similar to those disclosed above with respect to claim 1.

Claim Rejections – 35 U.S.C. §103

Claims 7-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** as applied to claim 6 above, and further in view of **Blanchard** (USP 6,347,114, previously cited).

Claims 7 and 8 depend from claim 4. Therefore, these claims are allowable for the same reasons as claim 4 by virtue of their dependency thereon.

Claims 15, 17, 18, 19 and 20 are rejected under 35 U.S.C. §103 as being unpatentable over **Chakraborty et al.** in view of **Park et al.** (USP 6,597,738, newly cited).

Dependent claim 15 depends from independent claims 1 or 4. Dependent claim 17 depends from independent claim 9. Dependent claims 18, 19 and 20 each depend from independent claims 1 or 4.

It is submitted that **Park et al.** does not alleviate any of the above noted deficiencies of **Chakraborty et al.** and that each of claims 15, 17 and 18-20 are allowable for the same reasons as the independent claims from which they depend.

Claims 21-22 are rejected under 35 U.S.C. §103(a) as being unpatentable over **Chakraborty et al.** in view of **Gonsalves** (USP 6,392,710, previously cited).

With respect to claims 21 and 22, the Office Action repeats the same rejection set forth in the previous Office Action. A response to the arguments provided in the previous response is provided in Items 4 and 5, pages 3-4, of the current Office Action.

In the previous response, it was argued that the combination of references does not disclose “extracting and combining means for extracting and combining a plurality of highlight scenes.” The Examiner responds to this argument asserting that the merging of shots when an interframe difference between two neighboring keyframes falls below a threshold (see col. 14, lines 57-60) discloses this feature. However, the merging of shots in **Chakraborty et al.** is based on the keyframes being too close, and is not based on whether the shots (scenes) are highlight scenes.

Further, in the previous response it was argued that the references do not disclose an “inserting means for inserting a video transition effect into a combined portion of the respective highlight scenes, wherein the inserting means makes a type of the video transition effect to be inserted different *according to whether the highlight scenes to be combined are the dynamic scene or the static scene.*”

The Examiner responds to this argument by asserting that **Gonsalves** allows a video transition effect to be inserted on a field/frame by field/frame basis (see Item 5 of Office Action). However, the Examiner's comments do not address (and the portions of **Gonsalves** that are cited do not disclose) the feature of making portions of the video transition effect to be inserted *different according to whether the highlight scenes to be combined are the dynamic scene or the static scene.*

In view of the above, it is submitted that the previous arguments with respect to claims 21 and 22 are still applicable, and that claims 21 and 22 distinguish over the cited references for the reasons discussed above.

CONCLUSION

In view of the foregoing, it is submitted that all pending claims are in condition for allowance. A prompt and favorable reconsideration of the rejection and an indication of allowability of all pending claims are earnestly solicited.

If the Examiner believes that there are issues remaining to be resolved in this application, the Examiner is invited to contact the undersigned attorney at the telephone number indicated below to arrange for an interview to expedite and complete prosecution of this case.

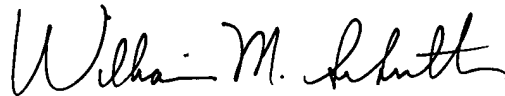
Application No. 10/670,245
Art Unit: 2609

Amendment under 37 C.F.R. §1.111
Attorney Docket No.: 031198

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

A handwritten signature in black ink, appearing to read "William M. Schertler". The signature is fluid and cursive, with the first name "William" being the most prominent.

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